

What is claimed is:

1. A locking apparatus for releasably holding first and second relatively movable members in at least one predetermined relative position, comprising:

5 a locking element supported on the first member for movement along a predetermined path in a first direction toward the second member to a locking position wherein an end of the locking element will be cooperatively received in a receptacle on the second member when the members are in the at least one predetermined position, and in an opposite second direction away from the second member to an unlocking position wherein the end of the locking element will be removed from the receptacle;

15 an actuating element supported on the first member for movement in a direction in opposition to a first resilient biasing element to a release position for applying a resilient biasing force in the second direction against the locking element for automatically removing the locking element from the receptacle when the biasing force exceeds any opposing force acting to hold the locking element in the receptacle, the actuating element being movable in an opposite direction in cooperation with the locking element to move the locking element in the first direction to the locking position;

25 a second resilient biasing element on the first member disposed for urging the actuating element in said opposite direction; and

30 a latch supported on the first member for movement between a latching position in engagement with the actuating element when in the release position for releasably holding the actuating element in the release

position, and an unlatched position disengaged from the actuating element to allow the second resilient biasing member to automatically move the actuating element in said opposite direction to move the locking element in
5 the first direction including to the locking position when the members are in one of the predetermined relative positions.

2. The apparatus of claim 1, wherein the
10 first member is movable along a predetermined path relative to the second member, and the second member includes an element cooperatively engageable with the latch when in the latching position and the first member is moved to a predetermined position along the path, for
15 moving the latch to the unlatched position such that the actuating element will be free to be moved by the second resilient biasing element so as to automatically move the end of the locking element into the receptacle when the members are moved to one of the predetermined
20 positions.

3. The apparatus of claim 2, wherein the first member is movable along the path between two of the predetermined relative positions, and the element on
25 the second member is disposed between the two predetermined relative positions so as to be engageable with the latch when the first member is moved between the two predetermined positions.

30 4. The apparatus of claim 2, wherein the element on the second member comprises a cam.

5. The apparatus of claim 3, wherein the locking element comprises a pin and the actuating
35 element comprises a lever mounted for pivotal movement

on the first member in the direction in opposition to the first resilient biasing element and in the opposite direction against the pin.

5 6. The apparatus of claim 5, wherein the direction in opposition to the first resilient biasing member is the first direction and the opposite direction is the second direction.

10 7. The apparatus of claim 1, wherein the first resilient biasing element comprises a spring.

 8. The apparatus of claim 1, wherein the second resilient biasing element comprises a spring.

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 9. A locking apparatus for releasably holding first and second relatively movable members in at least one predetermined relative position, comprising:

20 a base mountable on the first member so as to be located in predetermined relation to a receptacle on the second member when the members are in the at least one predetermined relative position;

 a pin supported on the base for movement along
25 a predetermined path in a first direction toward the second member to a locking position wherein an end of the pin will be cooperatively received in the receptacle when the members are in the at least one predetermined position, and in an opposite second direction away from
30 the second member to an unlocking position wherein the end of the pin will be removed from the receptacle;

 a lever supported on the base for pivotal movement in the first and second directions, including in the second direction in opposition to a first
35 resilient biasing member to a release position for

applying a resilient biasing force in the second direction against the pin for automatically removing the pin from the receptacle when the biasing force exceeds any opposing force acting to hold the pin in the
5 receptacle, the lever when moved in the first direction being engageable with the pin to move the pin in the first direction to the locking position;

 a second resilient biasing element resiliently urging the lever in the first direction when in the
10 release position; and

 a latch supported on the base for movement between a latching position in engagement with the lever when in the release position for releasably holding the lever in the release position, and an unlatched position
15 disengaged from the lever to allow the second resilient biasing member to automatically move the lever against the pin to move the pin in the first direction including to the locking position when the members are in one of the predetermined relative positions.

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 10. The apparatus of claim 9, wherein the second member includes an element cooperatively engageable with the latch when in the latching position and the first member is moved to a predetermined
25 position in relation to the second member, for moving the latch to the unlatched position to disengage from the lever such that the lever and the pin will be urged in the first direction by the second resilient biasing element so as to move the end of the pin into the
30 receptacle when the members are in the predetermined position.

 11. The apparatus of claim 10, wherein the members are movable between two of the predetermined
35 relative positions, and the element on the second member

engageable with the latch is disposed between the two predetermined relative positions.

12. The apparatus of claim 10, wherein the
5 element on the second member comprises a cam.

13. The apparatus of claim 12, wherein the
second member is mounted at a fixed location on a work
machine and the first member comprises a frame member
10 supported on the work machine for movement relative to
the second member in adjacent relation thereto through a
range of positions including the predetermined position
relative to the second member.

14. The apparatus of claim 13, wherein the
15 frame member supports a crop residue spreader.

15. The apparatus of claim 10, wherein the
lever is supported on the first member for pivotal
20 movement in the first and second directions.

16. The apparatus of claim 10, wherein the
first and second resilient biasing elements comprise
springs.
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17. A locking apparatus for releasably
holding a movable first member in at least one
predetermined position relative to a fixed second
member, comprising:

30 a pin supported on the first member for
movement along a predetermined path in a first direction
toward the second member to a locking position wherein
an end of the pin will be cooperatively received in a
receptacle on the second member when the first member is
35 in the at least one predetermined position, and in an

opposite second direction away from the second member to an unlocking position wherein the end of the pin will be removed from the receptacle;

5 a lever supported on the first member for movement in a direction in opposition to a first spring to a release position for applying a first spring force in the second direction against the pin for removing the pin from the receptacle when the first spring force exceeds any opposing force acting to hold the pin in the
10 receptacle, and in an opposite direction against the pin for moving the pin in the first direction to the locking position;

a second spring on the first member disposed for applying a second spring force against the lever for
15 resiliently urging the lever in said opposite direction; and

a latch supported on the first member for movement between a latching position for engaging the lever when in the release position for releasably
20 holding the lever therein, and an unlatched position disengaged from the lever, the latch being movable from the latching position to the unlatched position by movement of the first member in a predetermined manner relative to the second member such that the lever and
25 the pin will be urged in the first direction by the second spring so as to move the end of the pin into the receptacle when the first member is moved into one of the predetermined positions relative to the second member.

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18. The apparatus of claim 17, wherein the first member is movable in the predetermined manner by movement between two of the predetermined positions relative to the second member.

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19. The apparatus of claim 17, wherein the second member includes a cam engageable with the lever for moving the lever to the unlatched position when the first member is moved in the predetermined manner.

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20. A method for unlocking locked together first and second members to allow relative movement thereof, and locking the members together when moved to a predetermined position, comprising the steps of:

10 (a) providing a locking apparatus on the first member including a locking element movable between a locking position wherein an end of the locking element is receivable in a receptacle on the second member for locking the members together, and a release position
15 wherein the end of the locking element will be removed from the receptacle to allow relative movement of the members, the locking apparatus being operable in a locking mode for resiliently urging the locking element toward the locking position and in an unlocking mode for
20 applying a resilient biasing force against the locking element toward the release position so as to remove the end of the locking element from the receptacle when any force opposing the biasing force is overcome thereby, the locking apparatus being automatically movable from
25 the unlocking mode to the locking mode by relative movement of the first and second members;

(b) operating the locking apparatus in the unlocking mode such that the end of the locking element will be removed from the receptacle when the biasing
30 force overcomes any opposing force; then,

(c) relatively moving the first and second members to automatically move the locking apparatus to the locking mode; and

(d) relatively moving the first and second
35 members to position the members in the predetermined

position such that the end of the locking element will be received in the receptacle on the second member for locking the members together.

5 21. The method of claim 20, wherein the locking apparatus further comprises an actuating element latchable in a release position for applying the resilient biasing force against the locking element toward the release position so as to remove the end of
10 the locking element from the receptacle when any force opposing the biasing force is overcome.

 22. The method of claim 21, wherein the second member and the locking apparatus include elements
15 cooperatively engageable when the first and second members are relatively moved in a predetermined manner, for unlatching the actuating element to move the locking apparatus to the locking mode, such that further
relative movement of the members to the predetermined
20 position will allow the locking apparatus to lock the members together.